

REMARKS

Reconsideration and withdrawal of the rejection of the application are respectfully requested in view of the following remarks.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS.

Claims 1-6, 8 and 16-23 are pending in this application. While no claims are amended, Applicants hereby provide a Listing of the Claims for the convenience of the Examiner.

II. TELEPHONIC INTERVIEW

Applicant thanks the Examiner for the Interview with Applicant's representative on September 11, 2009, summarized herein. No agreement was reached with respect to the rejections under 35 U.S.C. §103.

II. THE REJECTIONS UNDER 35 U.S.C. §103

Claims 1-6, 8, and 16-23 are rejected over 35 U.S.C. §103(a) over U.S. Patent No. 6,470,944 to Billings ("Billings") in view of U.S. Patent Publication No. 2002/0102894 to Hansen ("Hansen") and U.S. Patent No. 6,428,874 to McGahern et al. ("McGahern"), and optionally further in view of EP 0 877 199 to Davenport ("Davenport") and EP 0 950 508 to Lanthier ("Lanthier"). Claims 1-6, 8, and 16-23 are rejected on the ground of non-statutory obviousness-type double patenting over claims 1-19 of Billings in view of McGahern and Hansen and further in view of Davenport and Lanthier.

Independent claim 1 recites, *inter alia*:

A single facer corrugator belt in combination with a corrugated paper board machine, said belt comprising:

a base structure, said base structure having an inside and an outside surface that contacts paper board and a machine or running

direction and a cross machine direction, said base structure being formed by machine direction yarns and cross machine direction yarns;

a liquid polymeric resin coating applied and cured on said outside surface of said base structure, wherein said polymeric resin does not substantially impregnate the base structure and that the polymeric resin coating forms a distinct layer on said outside surface of said base structure ; and

a plurality of grooves formed in said polymeric resin coating;

wherein said plurality of grooves aid in improved paper board release and increased rate of board moisture removal.

Billings, although for a corrugator belt, makes no mention of grooves whatsoever. Nor does it identify sheet release or venting moisture as problems.

Billings teaches away from a combination with McGahern

At pages 2-3, the Office Action now argues that Billings teaches a coating upon the surface of the belt as a separate and distinct layer as a non-preferred alternative. He cites to Billings's teaching at col. 42-50:

The integrity and durability of the present single-facer belt 40 is improved by coating and impregnating the base structure 52 with a polymeric resin material. **Complete impregnation of the needled base structure 52 is preferred rather than a distinct layer on the outside of the base structure.**

Id. Col. 4, lines 42-48, emphasis on pinpoint quote of Office Action. Based on this, the Office Action alleges it would have been obvious to modify Billing's belt for the reasons explicitly set forth in the Office Action of January 7, 2008 (referred to by several incorporated references throughout the file history, hereinafter the "January '08 Office Action").

As a general matter, Applicants do not disagree that it is known to have a coating upon the surface of the belt as a separate and distinct layer. Billings, however, explains its preference for complete impregnation thus, “[t]he integrity and durability of the present single-facer belt 40 is improved by coating and impregnating the base structure 52 with a polymeric resin material.” Billings thereby reasons that a lack of complete impregnation, and by extension lesser impregnation, results in a less durable, less stable single-facer corrugator belt. This alone teaches away from the claimed invention.

The January ‘08 Office Action further demonstrates why the references teach away from the proffered combination. It alleges Hansen teaches a long nip press (“LNP”) belt or a corrugator belt that can have grooves to temporarily store water, but admits Hansen’s belt is not coated or impregnated. It cites McGahern for an LNP with a base structured with a plurality of grooves for temporarily storing water. Thus using Hansen as the “missing link,” the Office Action alleges an ordinarily skilled artisan would look to McGahern’s LNP belt for the grooves in the resin of Billings, because Hansen shows that the same base structure for an LNP in a paper making machine is used in a corrugator machine.

This analysis assumed Billings’s belt is completely impregnated. As explained in the April 7, 2008 Response, McGahern, discloses a resin-impregnated endless belt for a LNP of the shoe type having a base structure impregnated by a polymeric resin material which **renders the belt impermeable to fluids, such as oil, water and air**. The grooves in this fully impregnated belt were for the **temporary storage of water pressed from a paper web, and not to ease sheet release or increase board moisture removal – which is in the form of moisture laden air**. Moreover, as Billings prefers complete impregnation – such as McGahern’s belt – for structural integrity and durability, an ordinarily skilled artisan would not:

- modify a non-preferred distinct layer that Billings refers to only to contrast the advantages of its compete impregnation; and
- would not further compromise the supposedly deficient structural integrity and durability of a distinct layer or incomplete impregnation by further incorporating grooves;

for a reason that has nothing to do with a single-facer corrugator belt, nor teaches any other advantage or reason for adding grooves. Thus the teaching away of Billings is only amplified by McGahern.

Hansen fails to cure, and indeed underscores, Billings's teaching away from McGahern
Hansen, the alleged missing link, fails to cure this deficiency and gulf between Billings and McGahern, as Hansen does not even disclose the use of grooves in a surface coating.

First, Hansen's grooves are formed on the *yarns of the fabric* and *not on an additional polymeric resin layer coated over the fabric*, again *for the temporary storage of water*. Hansen, ¶0021. Hansen states, “[o]ne or both of the upper and lower surfaces of the *monofilament yarn* may be provided with the *grooves for the temporary storage of water*.” *Id. This disclosure clearly indicates to an ordinarily skilled artisan that the grooves are meant for LNP belts, not single-facer corrugator belts.* As explained in more detail below, corrugator belts do not make any use of temporary water storage. Thus an ordinarily skilled artisan would understand that an LNP belt is referred to. Thus the mere fact that Hansen discloses teachings for LNPs and corrugator belts does not do enough to cure the Billings's strong teaching away from a modifying its belt with the grooves of McGahern, especially any putative embodiment with a distinct layer.

In detail, Applicants again point out that the paragraphs 15, 21 and 52 of Hansen, cited by the Office Action, show no relationship between grooves and corrugator belts. In paragraph 15, Hansen discloses a fabric used as a part of a corrugator belt, *but when referring to dewatering, Hansen refers to “other industrial settings” and not corrugator belts.* Paragraph 21 of Hansen talks of the use of *grooved yarns* with no application mentioned. The only grooved yarns are shown in Figure 6 and in paragraph 54, which discusses Figure 6, wherein the grooves are stated to provide for *storage of water from a cellulosic fibrous web. In other words, the grooves are used during papermaking and not in corrugator board production.* Similarly, in paragraph 52 (and 53) of Hansen, when referring to the holes in the yarn for water storage, *it is for water from a cellulosic fibrous web.* Accordingly, Hansen fails to teach using grooved or perforated yarns in a corrugator belt – even though corrugator belts are otherwise mentioned -- much less providing a missing link to modify Billings with McGahern to do so. Rather the yarns Hansen refers to are *reinforcing yarns and dewatering yarns.*

Thus when Hansen's yarns and resultant fabric have grooves for the temporary storage of water, that structure is used for paper machine clothing (“PMC”).

Also, the claim provides that the grooves are on an “outside surface of said base structure...[and] aid in improved paper board release.” This means that, inter alia, the grooves are on a sheet contact surface. In contrast, the text and claims of Hansen show that the structure “may be used as a reinforcing base for ...a process belts, such as corrugator belts.” Paragraph 0015. *Hence it is not intended to be the sheet contact surface.* For example, process belts are resin impregnated carcasses (a reinforcing base). *When used in this manner, one skilled in the art knows Hansen’s yarns do not have to have grooves to function as the reinforcing base.* The same is true when used as a reinforcing base of known corrugator belts at the time, which for the

most part had either needled batt and/or a coating on top of the reinforcing base. Thus consistent with Hansen's disclosure at, inter alia, paragraphs [0052]-[0055], Hansen's grooves are for embodiments for storing and conveying water away from a cellulosic fibrous web, and hence does not disclose or provide a linkage for other references for corrugator belts with grooves in polymeric resin, much less on a sheet contact surface side.

Next, the January '08 Office Action alleges that Billings fabric, as modified would "aid in improved paper board release and increase rate of board moisture removal," as is claimed, largely treating it as a process limitation. Putting aside the question whether this is or is not so, the recitation demonstrates that ordinarily skilled artisans looking at the grooves of McGahern and Hansen, which are for dewatering from a web, would have no reason incorporate them into Billings's fabric for the purposes of sheet release or venting moisture. When taken together with Billing's preference for complete impregnation for structural integrity of a corrugator belt, the references teach dramatically away from the modifications mapped from the references onto the claims by the Office Action.

Hansen and McGahern's Grooves are for impermeable LNP belts

Finally, Applicants note that LNP belts must be impermeable to protect the system from water mixing with the oil. Indeed, corrugator belts, however, can allow for permeable or impermeable belts. Thus the claimed belt of independent claim 1 is capable of being permeable or impermeable. See claims 6 and 7 of the present application. As the Hansen's grooves and holes are all for the purpose of void volume, and hence temporary storage of water, neither Hansen nor McGahern are contemplating or suggesting the use of grooves in a corrugator belt.

To sum up, McGahern's shoe press belt with a grooved surface provides spaces to separate the liquid phase moisture that is pressed from a sheet/press fabric. The present claims,

on the contrary, relate to a single facer corrugator belt in combination with a corrugator machine that is specifically designed to allow moisture vapor that comes from a **heated board** to pass out of the facer zone and into the belt. This is an entirely different application having different requirements for proper operation. Accordingly, the temporary storage of a liquid phase pressed from a web does not provide a reason for a skilled worker in the corrugator belt art to look into paper making belts to solve problems addressed by the present claim, e.g., the removal of vapor from a heated board.

Davenport and Lanthier

Nothing in the newly cited art cures these deficiencies. Davenport discloses a partially or completely impregnated calendar belt, which the Office Action cites for the general proposition of controlling the degree of coating, as well as impregnating a side with staple fiber batt. See Davenport, Abstract. Lanthier teaches a layer of polymeric resin material on a face side of a base to provide an increased co-efficient of friction. See Lanthier, Abstract, paragraphs [0034]-[0037]. Lanthier is cited to show a distinct layer to improve surface contact. Neither of the references deal with the issues of venting moisture laden air, paper board release, or otherwise supply any reason to overcome the contrary teachings of Billings or the silence of the remaining references. Applicants therefore request reconsideration and withdrawal of the §103 and double patenting rejections as independent claim 1 is patentable over Billings, Hansen and McGahern, and nothing in the art of record cures these deficiencies.

IV. DEPENDENT CLAIMS

The other claims are dependent from independent claim 1, discussed above, and are therefore believed patentable for at least the same reasons. Since each dependent claim is also

deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

CONCLUSION

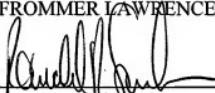
In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable and Applicants respectfully requests early passage to issue of the present application.

In the event the Examiner disagrees with any of statements appearing above with respect to the disclosure in the cited reference or references, it is respectfully requested that the Examiner specifically indicate those portions of the reference or references, providing the basis for a contrary view.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

Respectfully submitted,
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